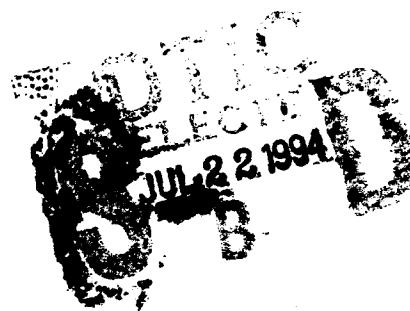


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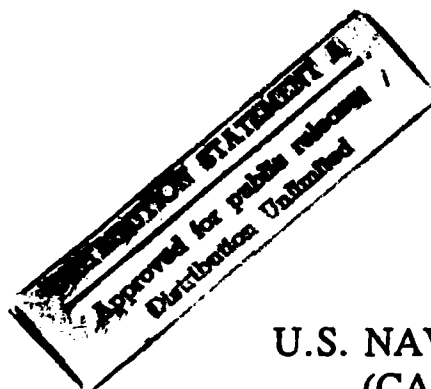
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CLINICAL FEATURES ASSOCIATED WITH HIV-1 INFECTION IN ADULT
PATIENTS DIAGNOSED WITH TUBERCULOSIS IN DJIBOUTI, HORN OF AFRICA

By

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Short Report

Clinical features associated with HIV-1 infection in adult patients diagnosed with tuberculosis in Djibouti, Horn of Africa

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In developing countries tuberculosis (TB) has been one of the most important public health problems for many years and this situation has worsened since the spread of the human immunodeficiency virus (HIV) and the pandemic of acquired immunodeficiency syndrome (AIDS). In Africa, TB is the foremost opportunistic infection of individuals infected with HIV (STYBLO, 1990) and new control measures, including large scale chemoprophylaxis (PORTER & MCADAM, 1992), are under consideration. Extra-pulmonary TB is more frequently reported among individuals with HIV than among HIV seronegative patients (HARRIES, 1990). HIV serological testing is not always available in African countries and clinical predictors of HIV infection in TB patients, more specific than the general features of extrapulmonary TB, would be of substantial interest to physicians. For instance, an association between histories of fever and weight loss and HIV infection has been reported in Ugandan TB patients (ERIKI *et al.*, 1991). In Djibouti, a tiny country surrounded by Ethiopia, Somalia, and the Red Sea, more than 2500 new cases of TB are diagnosed each year at Centre Paul Fauré (CPF), the main TB hospital, in Djibouti city. The diagnosis of TB is based on either a positive direct smear examination by fluorescence microscopy using auramine stain, or a positive culture on modified Loewenstein's medium. In 1991, foreigners, chiefly Ethiopians and Somalis, constituted 49% of the cases and the estimated TB incidence in Djibouti alone was 280/100 000. Pulmonary TB constituted 58%, glandular TB 20%, and primary infection 10%, of all newly diagnosed TB cases. The species of *Mycobacterium* responsible for TB was exclusively *M. tuberculosis* (see AUREGAN *et al.*, 1988). In 1986, the first case of HIV infection was diagnosed in the country; prevalence of HIV infection increased rapidly among high-risk groups, particularly street prostitutes, 42% of whom were infected in 1990 compared with only 4.6% in 1987 (RODIER *et al.*, 1991). Screening for HIV antibodies used a recombinant enzyme-linked immunosorbent assay (ELISA) (either Abbott, Chicago, Illinois, USA or Pasteur Diagnostic, Paris, France) and a specific confirmatory Western blot assay (Pasteur Diagnostic). Although several patients had evidence of HIV-2 infection, the vast majority of HIV infections were due to HIV-1. Since 1 January 1990, HIV antibody testing has been mandatory for all newly diagnosed TB patients. In 1991, the prevalence of HIV seropositivity was 9.8% among adult patients (aged >16 years).

We conducted a retrospective medical record study of all adult patients diagnosed with TB at CPF in 1991: 1844 records (92%) had complete information concerning

demography (sex, age, nationality), clinical and radiological features associated with TB (pulmonary lobar infection, pleural effusion, peripheral lymphadenopathies, mediastinal lymphadenopathies, peritonitis, ascites, pericarditis, and other less usual manifestations such as TB meningitis, Pott disease, renal TB, and cutaneous TB), and HIV serological status (recombinant HIV-1/2 ELISA confirmed by specific Western blot). Patients with indeterminate Western blots for HIV were not considered to be infected with HIV for this study. One hundred and six of the 1844 TB patients (5.7%) had antibodies against HIV-1 and 2 patients had antibodies against both HIV-1 and HIV-2. Statistical multivariate analysis by logistic regression procedures used Statistix[®] version 4 software (Analytical Software, St Paul, Minnesota, USA).

The simplest model of predictors for HIV seropositivity eventually involved 3 variables, 2 of which were clinical symptoms (Table). The odds ratios were 5.08 (95%

Table. Logistic regression of HIV seropositivity*

Variables	Coefficient	Standard error	Coefficient standard error	P ^b
Peritonitis	1.62470	0.67669	2.40	0.0164
Pleural effusion	0.76675	0.26379	2.91	0.0037
Ethiopian nationality	0.75669	0.20499	3.69	0.0002

*Deviance=789.54; *p* value=1; degrees of freedom=1840.

^bProbability of null hypothesis of no association between variable and HIV infection.

confidence interval [95%CI]=1.35, 19.13) for peritonitis, 2.15 (95% CI=1.28, 3.61) for pleural effusion, and 2.13 (95% CI=1.43, 3.19) for Ethiopian nationality. Djiboutian and Somalian nationalities, and the other variables mentioned above, particularly age, sex, peripheral adenopathies, and ascites, did not significantly improve the model. The particularly high percentage of glandular TB in this region of Africa, present before the spread of HIV infection, may explain the absence of statistical association between HIV positivity and peripheral lymphadenopathy.

In addition to the previously recorded statistical association between Ethiopian nationality and HIV status in Djibouti (FOX *et al.*, 1989), these results suggest that newly diagnosed TB patients, suffering from peritonitis or pleural effusion, are at higher risk for HIV seropositivity than other TB patients. These clinical features are, however, relatively poor predictors (high variance), and should not be considered as markers of HIV seropositivity. They should simply prompt physicians to consider HIV infection in such patients, particularly since surgery for peritonitis and drainage of pleural effusion carries a high risk of exposure to body fluids.

Acknowledgements

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The opinions and assertions contained herein are the private ones of the authors and are not to be construed as official or as reflecting the views of the US Department of the Navy, the Government of the United States, the US Department of Defense, the Djibouti Ministry of Health, or the World Health Organization.

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Announcement

David Bruce Centenary

To celebrate the centenary of David Bruce's discovery of *Trypanosoma brucei* and its transmission by the tsetse fly, *Glossina* spp., the Parasitological Society of Southern Africa and the Royal Society of Tropical Medicine and Hygiene, in collaboration with other organizations, is organizing an international trypanosomiasis congress on 30 June-6 July 1994. The Congress will take place, initially, in Johannesburg followed by an excursion to the magnificent Itala game reserve in northern Natal, where further scientific sessions will be held as well as the centenary celebration and a visit to the historical site of Ubombo where Bruce made the discovery.

Further information can be obtained from Prof. Peter Fripp, Department of Microbiology, Medical University of Southern Africa, P.O. Medunsa, 0204, Republic of South Africa.
[See the *Transactions*, vol. 87, part 4, pp. 494-495.]